

(54) Title of the Device: Electronic Apparatus

(11) Japanese Utility Model Application Laid-Open Publication
No. 3-121442

(43) Publication Date: December 12, 1991

5

(21) Japanese Utility Model Registration Application No. 2-30047

(22) Filed: March 23, 1990

(71) Applicant: Toshiba Corporation

10 (72) Creator of Device: Tsutomu TAKENAKA

(74) Agent: Patent Attorney, Norio OOGO

SPECIFICATION

1. Title of the Device

15

ELECTRONIC APPARATUS

2. Claim of Utility Model

20 An electronic apparatus including a display section having
a display unit selected from plural display units different in
classification from each other and a main section for supplying
a display electric power and a display signal to the display
section, characterized by including a connection unit for making
a detachable connection between the display section and the main
section, a classification signal generating unit provided in
the display section for generating a classification signal on

the selected display unit, and a matching unit for matching the display electric power and display signal, which are to be supplied from the main section through the connection unit to the display section, to the selected display unit on the basis
5 of the classification signal.

3. Detailed Description of the Device

[Object of the Device]

(Industrial Field of Utilization)

The present device relates to an electronic apparatus such
10 as a PC, and more particularly to an electronic apparatus for selecting a display unit in accordance with the intended use.

(Prior Art)

A plasma display panel (PDP), a liquid crystal display (LCD),
an electroluminescence display are each used as a display unit
15 to be connected to an electronic apparatus such as a computer. Each of the display units has its own unique feature: a PDP provides an easy-to-see display although consuming a large electric power; a LCD has power consumption considerably smaller than PDP, which permits a long-time use of an electronic apparatus on battery
20 power although inferior in easy-to-see characteristic to PDP.

The previous electronic apparatus uses one type of display unit selected from the group of these display units in an inflexible manner. This causes the main section of the

electronic apparatus to be put in a limited use of only one type of display unit.

(Problems to be Solved by the Device)

In an office, a user tends to use an electronic apparatus
5 having the easy-to-see PDP as a display unit because a commercial power source in the office can be available. On a business trip that may disable the use of such power source, a user tends to use an electronic apparatus with a LCD that can be used for a long time on battery power. If a user would try to satisfy the
10 uses of under these situations on one electronic apparatus, the user needs to prepare two electronic apparatuses appropriate for such situations. The problem is that preparing plural electronic apparatuses according to the purposes or situations of various uses causes an economic burden for a user.

15 Under the circumstances, the present device aims at providing an electronic apparatus that is so designed as to enable a user to optionally select and use a display unit among plural different type display units on this single electronic apparatus.

(Constitution of the Device)

20 (Means for Solving the Problems)

To solve the problem, according to a present device, an electronic apparatus including a display section having a display unit selected from plural display units different in classification from each other and a main section for supplying

a display electric power and a display signal to the display section is configured to include a connection unit for making a detachable connection between the display section and the main section, a classification signal generating unit provided in the display section for generating a classification signal on the selected display unit, and a matching unit for matching the display electric power and display signal, which are to be supplied from the main section through the connection unit to the display section, to the selected display unit on the basis of the classification signal. This configuration allows the display electric power and display signal matched to the selected display unit on the basis of the display unit classification signal to be supplied from the main section to the display section, in order to permit a user to select an appropriate display unit among plural display units according to optional use or the situation of use of an electronic apparatus.

(Embodiments)

An embodiment of the present device will be described hereinbelow with reference to the drawings.

FIG. 1 is a block diagram showing a configuration of an embodiment of the present device. FIG. 2 is a perspective view showing the entire configuration of an electronic apparatus according to an embodiment of the present device. FIG. 3 is

an illustration of a detached state of an electronic apparatus according to an embodiment of the present device.

As shown in FIGs. 2 and 3, an electronic apparatus according to the present device, e.g., a personal computer (PC), includes
5 a display section 2 having a display unit 1, e.g., a PDP or a LCD, for displaying a result of arithmetic operations, and a main section 4 having a keyboard 3 for inputting data and commands etc. The display section 2 and the main section 4 are detachably
connected to each other through a male connector 5 and a female
10 connector 6. The male connector 5 is disposed at a right lower end portion of the display section 2. The female connector 6 is disposed at a right upper portion of the main section 4, oppositely to the male connector 5. Moreover, a protruding hard engagement piece 7 is provided at a left lower end portion of
15 the display section 2. Oppositely to this engagement piece 7, an elongated opening portion 8 is formed along a side edge of the main section 4 at a left upper portion of the main section 4. When the male connector 5 is inserted into the female connector 6 such that the display section 2 and the main section
20 4 are connected with each other, the engagement piece 7 is inserted into the opening portion 8 and is engaged with a locking part (not shown) located under the opening portion 8. There is a hinge mechanism (not shown) in between the female connector 6 and the locking part that permits the display section 2 to be

freely foldable with respect to the main section 4. The engagement piece 7 rotates along the opening portion 8 with the locking part as a fulcrum.

Meanwhile, as shown in FIG. 1, the display section 2 contains
5 a display unit 1, a classification signal generating unit 9 that generates a classification signal indicative of the classification of the display unit 1, and a matching unit 10 that outputs a matching signal to the main section 4 on the basis of the classification signal outputted from the classification
10 signal generating unit 9. As the display unit 1, there is employed one selected from a plurality of PDPs, LCDs, color PDPs or color LCDs different in classification from each other. The classification signal generating unit 9 generates a classification signal having a code signal according to the
15 classification adopted for the display unit 1. Supposing that the classification signal generating unit 9 should be configured to contain a register having plural bits and that a PDP, a LCD, a color PDP and a color LCD are targets for selection, a two-bits arrangement is taken such that each of classification signals
20 generated by the classification signal generating unit 9 are "00" for a PDP, "01" for a color PDP, "10" for a LCD, and "11" for a color LCD. In addition, in order for the display unit 1 to make a display, the matching unit 10 outputs a matching signal to the main section 4 to receive a display signal and

display electric power from the main section 4 on the basis of the classification of the display unit for the display unit 1.

Furthermore, the main section 4 includes a keyboard 3, a display control unit 11, an electric power supply unit 12, a
5 microprocessor for controlling the entire apparatus of a PC (not shown). The matching signal is inputted from the display section 2 through the connectors 5 and 6 to the display control unit 11 and the electric power supply unit 12. On the basis of this matching signal, a display signal corresponding to the
10 classification of the display unit 1 is supplied from the display control unit 11 to the display unit 1 and a display electric power, for example, approximately 240 volts for a PDP and several volts for a LCD, is supplied from the electric power supply unit 12 to the display unit 1 according to the classification of the
15 display unit 1.

Secondly, a description will be given of an operation of the above-mentioned configuration according to an embodiment of the present device.

First, when a PC is used in an office where a commercial
20 power supply is available, the electric power from commercial power supply can be supplied thereto through an AC adapter (not shown), and, hence, it is appropriate to employ the display section 2 in which a PDP (having an easy-to-see display although consuming a large electric power) is used as the display unit

1. In this case, a classification signal with a code "00" is
outputted from the classification signal generating unit 9 to
the matching unit 10, and the matching unit 10 outputs a matching
signal corresponding to this classification signal to the display
5 control unit 11 and the electric power supply unit 12. In
accordance with the matching signal, the display control unit
11 outputs a display signal required for a PDP to the display
unit 1. The electric power supply unit 12 supplies, to the
display unit 1, a display power of approximately 240 volts for
10 driving a PDP. Upon receipt of these display signal and display
power, the display unit 1 makes an easy-to-see display that is
a feature of a PDP.

When a PC is used at a place where the commercial power supply
is not available, instead of the display section 2 with a PDP,
15 which consumes a large electric power although making an
easy-to-see display, the display section 2 with an LCD available
for a long-time use with small electric power consumption is
appropriate. To meet such a need, the display section 2 needs
to be replaced. In the event of a replacement, the display
20 section 2 is pulled out in a direction of an arrow in a state
that display section 2 is vertically held, detached from the
opening portion 8, and the engagement portion 7 is inserted into
the opening portion 8 and the display section 2 (LCD) is pushed
in a direction opposite to the arrow direction so as to be attached

to the opening portion 8. When an LCD is used as the display unit 1, as well as the case of a PDP, a classification signal with a code "10" is outputted from the classification signal generating unit 9 to the matching unit 10, and the matching unit 5 10 outputs a matching signal corresponding to this classification signal to the display control unit 11 and the electric power supply unit 12. In accordance with the matching signal, the display control unit 11 outputs a display signal required for a LCD to the display unit 1 and the electric power supply unit 10 12 supplies a display power of several volts to the display unit 1 for driving a LCD. Upon receipt of these display signal and display power, the display unit 1 is placed into a small power consumption state that is a feature of a LCD and that permits of a long-time use of a PC on battery power.

15 Although the above-described embodiment adopts a configuration in which the matching unit is built in the display section, the present device is not limited to this, but it is also acceptable that, for example, the matching unit is built in the main section or that the microprocessor built in the main 20 section fulfills the function of the matching unit instead.

In addition, the present device is not limited to the above-described embodiment but, naturally, it is possible to make all modifications thereof which do not constitute departures from the spirit and scope of the device.

[Advantages of the Device]

As described above in detail, the electronic apparatus according to the present device is configured such that a display unit is selected on the basis of a display unit classification signal, and a display signal and display power matched to the classification of the display unit are supplied to the display unit. This configuration permits of replacement among plural display units on a single electronic apparatus, enabling a user to select and use an appropriate display unit according to optional use and usage environment, keeping him/her away from the economical burden.

4. Brief Description of the Drawings

FIG. 1 is a block diagram showing a configuration of an embodiment of the present device, FIG. 2 is a perspective view showing the entire configuration according to an embodiment of the present device, and FIG. 3 is an illustration of a detached state of the same electronic apparatus.

- 1 ... Display unit,
- 2 ... Display section,
- 4 ... Main section,
- 5 ... Male connector (Connection unit),
- 6 ... Female connector (Connection unit),
- 9 ... Classification signal generating unit,
- 10 ... Matching unit,

11 ... Display control unit,

12 ... Electric power supply unit

⑬ Int. Cl. °

G 06 F 3/147

識別記号

3 1 0 A

庁内整理番号

8323-5B

⑭ 公開

平成3年(1991)12月12日

審査請求 未請求 請求項の数 1 (全1頁)

⑮ 考案の名称 電子機器

⑯ 実 願 平2-30047

⑰ 出 願 平2(1990)3月23日

⑱ 考 案 者 竹 中

勉

東京都青海市末広町2丁目9番地 株式会社東芝青梅工場内

⑲ 出 願 人 株 式 会 社 東 芝

神奈川県川崎市幸区堀川町72番地

⑳ 代 理 人 弁 理 士 大 胡 典 夫

㉑ 実用新案登録請求の範囲

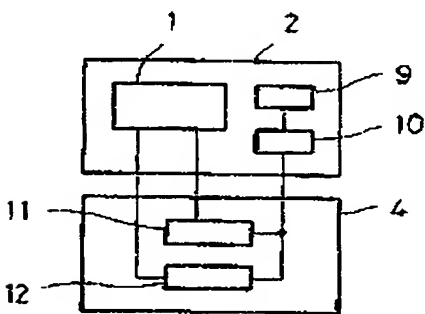
種別の異なる複数種類の表示装置から選択された表示装置を備えた表示部とこの表示部に表示用電力と表示信号を供給する本体部とからなる電子機器において、上記表示部と上記本体部とを着脱自在に接続する接続部と、上記表示部に設けられ選択された表示装置の種別信号を発生する種別信号発生部と、この種別信号に基づいて上記本体部から上記接続部を介して上記表示部に供給する表示用電力と表示信号を上記選択された表示装置に整合する整合部とを具備したことを特徴とする電

子機器。

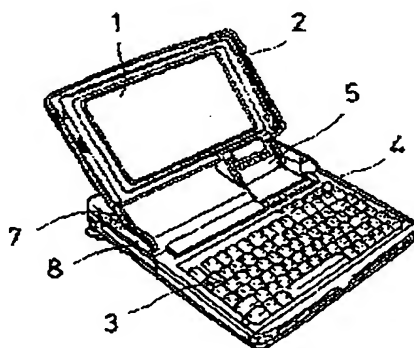
図面の簡単な説明

第1図は本考案の一実施例の構成を示すブロック図、第2図は本考案の一実施例の全体の構成を示す斜視図、第3図は同電子機器の着脱の状態を示す図である。

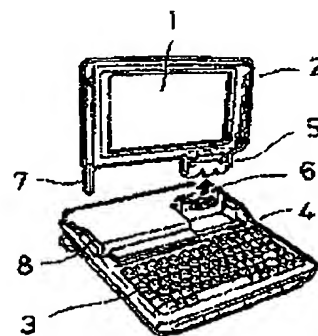
1……表示装置、2……表示部、4……本体部、5……雄コネクタ(接続部)、6……雌1コネクタ(接続部)、9……種別信号発生部、10……整合部、11……表示制御部、12……電源部。



第 1 図



第 2 図



第 3 図